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ABSTRACT

This symposium on adult learning and human resource development consists of three presentations. "Adult Learning Principles and Concepts in the Workplace: Implications for Training in HRD" (Margot B. Weinstein) reports on findings from interviews with restaurant employees who reported that training practices using adult learning principles increased their learning and made them feel more qualified and confident, valued and essential to the success of the organization, and increased their collaborative and problem solving skills. "The Legacy of Malcolm Knowles: Studying Andragogy Andragogically" (Mary Boudreaux, Thomas Chermack, Janis Lowe, Lynda Wilson, Elwood F. Holton III) describes the examination of a portion of Malcolm Knowles' personal correspondence and the subsequent creation of a database to index it. "Facilitating Learning with Graduate Students in Human Resource Development" (Barbara J. Daley) describes an investigation of the ways in which constructivist teaching strategies influence learning and examines the positive learning results experienced by graduate students who used concept mapping as a constructivist strategy. The second and third papers contain figures and tables. All three papers include substantial bibliographies. (AJ)

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Adult Learning Principles and Concepts in the Workplace: Implications for Training in HRD.

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Research and theory indicated that training practices using adult learning principles can increase learning for employees in the workplace. The purpose of this qualitative research study was to examine how theory is being practiced in the workplace. The paper presents four existing adult learning principles and relates the information to interviews with participants in one organization. Finally, it provides conclusions and recommendations on how this information can contribute to the field of HRD.

Keywords: Training, Adult Learning Concepts, Learning

It has been estimated that organizations spend over $200 billion each year on training and human resource development (HRD) (Carnevale, Gainer & Villet, 1990. Recent shifts in the economy of the United States have forced trainers and human resource developers to re-examine their training strategies to insure that employees learn in the workplace (Willyard and Conti, 2001). Many sources in the literature discuss how adults learn in the workplace through application of principles of adult education (Noe, 2001; Knowles, 1980, 1995; Gilley and Eggland, 1989; Gilley and Maycunich, 2000). Because of the tremendous costs spent on training each year, both human and financial, it is important to constantly add to the research and literature to create more effective programs in HRD. In this qualitative case study, the CEO and the Senior Management Team (SMT) are responsible for designing and implementing the training procedures with employees in this organization. The SMT is well known throughout the industry for creating innovative training practices utilizing adult learning principles. These practices have been credited with increasing the learning and performance of their employees in the workplace. Training is defined as "Learning that is provided in order to improve performance on the present job" (Gilley and Eggland, 1989, p.7). Therefore, the purpose of this study was to examine how the principles of adult learning were used in the design of formal and informal training practices to increase learning for employees in the workplace and relate the findings to the field of HRD. Through the lived experiences of the CEO, the SMT and several employees, five major themes emerged. This paper first reviews the literature, then, it examines the principles in the data, and last, conclusions and recommendations are related to the field of HRD.

Theoretical Framework

The research study began by focusing on the concept of Andragogy by Malcolm Knowles, defined as "the art and science of helping adults learn" (Knowles, 1980, p. 43). Andragogy transformed the study of adult learning. However, throughout the year long study, qualitative methods allowed themes to emerge from interviews with the CEO, members of the SMT and employees that revealed that SMT also utilizes other adult learning principles in their training practices. One of the characteristics of qualitative case study is its ability to illuminate a phenomena in its context that enables themes to be identified and examined (Yin, 1994). A review of the literature acknowledged that the following concepts and approaches have been used to help adults learn in organizations; each approach has its own preferred approach to learning (Gilley and Maycunich, 2000; Gilley and Eggland, 1989). The principles that emerged were examined in the literature, and they formed the basis for the continued research at this organization.

Andragogy

Malcolm Knowles (1980, 1995) concept of Andragogy, adult learning theory, formed the basis for this study. Andragogy is based on the assumption that learning is an internal process of which the locus of control resides with the learner, and therefore the teacher or trainer is to facilitate the learning. Five key assumptions form the tenets of Andragogy by Knowles (1980; 1995): (a) Self-concept of the Learner. Adults have a deep psychological need to be self-directing, (b) Role of experience. Adults bring with them a rich background of experiences that is a valuable resource for their own learning and that of other students, (c) Readiness to Learn. Adults learn more effectively when adults see that the information is relevant to their lives. It assumes that the facilitators need to help adults see how the training or

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courses can help them perform more effectively in their jobs, (d) Orientation to Learn. Adults enter into educational or training activities to acquire prescribed subject-matter. Educational activities need to help adults in the process of acquiring content in organized units, sequenced according to logic of the subject matter, (e) Motivation to Learn. "Each person is unique and brings with his/her own goals and internal motivators; it assumes that learning plans and strategies must be highly individualized" (Knowles, 1995, pp. 1-3).

Experiential Learning

Another approach to learning is the experiential model by Kolb (1984). In this model, true learning depicted as a four-part process. Kolb (1984) proposed that learners have "concrete experiences;" then they reflect on the experiences from a variety of perspectives. From these "reflective observations," learners engage in "abstract conceptualization" in which they create generalizations or principles that they integrate their observations into theories. Learners use these generalizations as guides to engage in further action called "active experimentation," which they test what they have learned in more complex situations.

Humanist Theory

This approach exemplified by Carl Rogers's (1974) states that all people are unique and possess individual potential; and all people have a natural capacity to learn. This approach upholds the idea that the purpose of learning is to encourage individuals to develop his/her full potential (Gilley and Eggland, 1989). Humans have the ability to learn almost anything. The combination of external factors and internal fears can prohibit humans from learning unless they receive warmth, care and understanding (Wiltsher, 1999). Maslow (1970) argued that people have personal factors that influence the need for learning, and Maslow proposed a theory of human motivation for learning, based on the "Hierarchy of Needs," individuals first learn to satisfy basic needs such as hunger and thirst and they progress towards self-actualization.

Transformative Learning Theory

Mezirow (1978) said that this approach is associated with meaning-making processes, by examining how a more inclusive integrative understanding of one's experience can be used to solve complex problems. In this concept, it is not just the mere accumulation of experience that matters, but instead, the way in which individuals make meaning of their experiences that facilitates growth and learning. Mezirow (1978) defines learning as a meaning-making activity: "Learning is understood as the process of using a prior interpretation to construe a new or a revised interpretation of the meaning of one's experience in order to guide future action" (p. 162). Transformative learning centers more on the cognitive process of learning, and key is that people are changed from the learning. Mental construction of experience, inner meaning, and reflection are common components of this approach. "Adult learning can be viewed as an interpretation of information utilizing one's existing set of expectations through which meaning and ultimately one's life are constructed (Willyard and Conti, 2001, p. 325). The literature of HRD stresses the importance for employees to be able to ask questions to learn and develop (Gilley and Eggland, 1989). Central to Mezirow's concept (1991) is reflection as a "process of critically assessing the content, process, or premise(s) of our efforts to interpret and give meaning to experience. We are able to examine our action and begin posing a problem, and it ends with taking action, and the emphasis on action as the end product of the reflective process" (p. 104).

Research Questions

Since this organization is known for creating innovative formal and informal training practices using adult learning principles, this research study sought to learn what principles they used, how they were practiced, and how that information could be used to design programs in HRD. Research can add to understanding theory and practice. In order to gather that information, the following questions were designed:

1. What adult learning principles and concepts are used in the formal and informal training of employees in this organization?

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2. How are these principles applied in the training practices in the workplace?
3. What are the lessons for training adults using these principles that can be applied to the field of HRD?

Methodology

This study used qualitative case study for the research design. A fundamental characteristic of case study is an intensive analysis of a phenomenon in its context that can uncover significant factors or characteristics (Merriam, 1988). A case problem approach consists of a written account of a situation that provides rich details of a phenomena (Yin, 1994). The information was gathered through formal and informal interviews and observations with the CEO, members of the SMT and 30 employees. The study lasted for one year.

Sample

Participants included the CEO and owner, six members of the SMT and 30 employees from the Cite' Fine Dining Organization located in Chicago, Illinois. The CEO and six leaders of the organization are responsible for designing and implementing the training and management procedures for the organization. The employees were very diverse; of the thirty employees: (a) more than half were men, (b) ranged from age from mid-twenties through sixties, and (c) held positions from janitorial to executives. The CEO and the SMT includes seven leaders who manage the organization; their profiles are as follows: The CEO and owner, Evangeline Gouletas, is the only women in a top leadership role in this organization. She is 40 plus years of age; she has 32 years of experience as a leader, educator and trainer. She has a master's degree, and she has completed all course work for her dissertation. She regularly takes continuing education to maintain several professional licensees, and she serves in leadership positions for many organizations and professional associations in the business. The men are between the ages from their late twenties to early sixties, and they have been successful in the business for over ten years. The men have all received their baccalaureate degrees, and one holds a law degree. In addition, several members hold licenses to practice in one or more areas of the business, maintain membership in professional organizations in the field, and take continuing education programs on a regular basis to maintain licensees and acquire new information.

Data Collection and Analysis

The information was gathered through formal and informal interviews, observation, review of documents and articles on the organization. Formal taped interviews lasted for approximately one hour. The interviews were first transcribed verbatim. The participants also received copies of the final transcribed tapes of the formal taped interviews, and they edited any personal information that they did not want in the final case study. In order to examine the data, tables were designed to display the data, and quotations from participants and further explanations were presented by the researcher as needed to clarify the data. The characteristics that emerged from the research were validated through review of tapes, transcriptions and field notes. The researcher contacted the participants several times during this study as well as reviewed all published information about their company and themselves in order to obtain accurate information. The information was further validated through documents, journals, literature review, and discussions with other professionals and educators in the field. After the completion of the data analysis process, another phase of data analysis, a search for themes, was begun. The process used "concept mapping" (Smith and Associates, 1990) as a diagnostic tool. "A concept map depicts in a diagrammatic form, ideas, examp les, relationships, and implications about a particular concept. The center or core idea is placed at the center or top of the page, and radiating from it are a number of spokes or lines leading to other concepts related to, or indicated of the central idea" (Smith and Associates, 1990, p. 49). Concept mapping enabled the researcher to group similar examples of large concepts together, and smaller concepts were set aside until they could be integrated into the larger themes; this process allowed the dominant themes to emerge from the data. The similarity of the process of the information gained in the case studies made possible the rich, descriptive data needed to interpret the phenomenon being investigated (Merriam, 1988).

Limitations of the Study

Since the study was limited to the training techniques used in one organization, the study does not attempt to predict if this information is utilized by all workplaces. Although case studies can lead to deeper insights into this area of the study, findings from case studies cannot be generalized in the same way as the findings from random samples. For this reason, this research should lead to further research on the subject.

Results and Findings

The results provided information and data that lead to deeper understanding on all three research questions. This section reviews statements by participants that describe the effect that utilizing adult learning principles in training had on employees in the organization.

Andragogy

Role of Experience. First, one of the key principles of Andragogy by Knowles (1980, 1995) is the role of the learner's experience. Andragogy assumes that adults come to situations with a depth and breadth of experience than can be used as a resource for theirs and other learning (Knowles, 1980, 1995). Participants commented that the CEO and SMT in the organization use several training techniques to draw upon the life experiences of their employees. One participant said:

Employees regularly attend meetings where they listen to tapes from inspirational people such as: Dr. Wayne Dyer, Anthony Robbins and Depoc Chopraw. After they have reflected on how the story in the tape parallels their own experiences, they are asked to share a story from their life experiences in relationship to tapes with other employees and explain what they learned from the tapes.

The CEO commented:

I believe that listening to tapes is a great way to learn and see the connections with your life/work.

One participant's statements reflected those made by many employees:

By reflecting and sharing my experiences with others, I realized how valuable my past experiences are to my work.

Readiness to Learn. A second tenet of Andragogy, states that adults learn more effectively when they see that the information is relevant to their lives, and it assumes that the facilitators need to help adults see how the training or courses can help them perform more effectively in their jobs. Throughout this study, participants discussed how the organization provides learning opportunities that help employees see how their learning improves their performance at work. One participant said:

Once a month, famous speakers are asked to come in and discuss the changes and challenges in the business. Afterwards, we analyze how the information can improve our work. This is terrific way to learn.

Another participants added:

Speakers provide many new ideas in the business, and a discussion afterwards allows us to tie the information to our work. We have the opportunity to network and learn from knowledgeable people in the field.

Orientation to Learning. A third tenet of *Andragogy* according to Knowles(1980, 1995), is that adults are problem-centered rather than subject centered. Adults need to know why they are learning new skills, acquiring new knowledge, or changing their behavior and they want explanations of how the proposed learning will benefit them. The implication for this is that learning experiences should be organized around tasks or problems (Knowles, 1995). A member of the SMT explained how they solve problems as part of a team:

The CEO and the SMT hold a luncheon meeting each month, in which each member of the team presents pertinent details of all current projects that they are working on in their department, and then, the team members get the opportunity to analyze how their work will contribute to the success of the project. For example, the marketing department will review how it will create a marketing campaign for the organization. We all learn from the experience. Sharing ideas with team members, is a terrific way to get new ideas and solve problems.

Another participant added:

When I am working on a problem, I collaborate with other employees or ask for advise from the CEO. Collaboration really helps me gain insight and learn. All employees work well in teams from wait staff to SMT. Each department holds formal and informal meetings where they share ideas to solve problems as part of a team.

Motivation to Learn. The third tenet of *Andragogy* is that adults are *motivated to learn*. Knowles (1995) asserts that although adults will respond to some external motivators such a job promotion or a change in technology, he proposes that the most powerful motivators for adults are internal motivators such as: self-esteem, recognition, self-confidence, self-actualization, and he suggests that training should emphasize these kinds of benefits. One participant said:

> We are motivated to learn because of our personal needs, also, because continued learning, creativity and innovation are valued in our organization. We are encouraged to attend courses and join organizations.

One participant added:

> Our organization holds dinner meetings of professional organizations at work. We are encouraged to attend and serve in leadership positions of the organizations. It is a very convenient, and it is a productive way to learn and to network. It gives me an a opportunity to meet others in my field and stay up on new ideas without traveling.

Another participant added:

> I really appreciate that my boss realizes my personal motivation to learn and provides many opportunities for continued learning and networking in the field. The Organization has also established programs to help employees pursue their independent learning projects. We have a Corporate Library where tapes, journals and books are available, and employees are encouraged to use the material.

It was apparent from statements made from participants that the CEO and SMT in this organization not only values continued learning, but they also recognize the personal motivation of their employees. The CEO stated:

> This year I encouraged employees to read: *Jesus CEO: Using Ancient Wisdom for Visionary Leadership* by Laurie Beth Jones published in 1995; reading is a wonderful way to learn. Also, you encompass people and make them feel valued and part of a team. And, I encourage for my teammates to be self-reliant, to be innovative, to not just do what is listed on the job description, but to create their own goals, their own visions and to be self-motivated. Anybody will do what the boss says. It becomes a checklist and you do those ten things. But it is when you go to item number 11, 12, 13, 14, 15, goals that you have placed on yourself for your own self-development in your own department, where you develop beyond the scope of the job, and I see employees do that in every single department.

Experiential Learning

Experiential Learning by Kolb (1984) is another concept that focuses on experiences as a basis for learning new ideas. Kolb (1984) explained that in addition to adults having had many rich life experiences, it is well established that they learn from experiences. Kolb proposed that learning is a process where knowledge is created through the transformation of experiences, and that often, learning is a four-part process. According to Gilley and Maycunich (2000), "experiential learning can enable learners to develop highly complex cognitive skills As such as decision making, evaluating, and synthesizing, to sharpen interpersonal communication skills" (p. 128). One participant explained how they learn from experience:

> In spring of this year, we took the wait staff from busboys to the dining roommanager of the restaurant to a Winery in Illinois, and they learned all about wines. Then, they used what they had learned in their jobs.

Another participant stated:

> This Spring, we also took the chefs from the restaurant to New York, and they toured many of the fine dining restaurants. After each trip, employees had the opportunity to reflect on their experiences and share what they had learned with each other. Then, they were able to use the information to solve problems at work.

One participant noted:

> Trips allows us to really experience and see first hand many practices that we can incorporate into our organization. We really learn from these experiences, because it gives us the opportunity to reflect on experiences, and share experiences with my coworkers. Then, we are able to apply the information directly to our current jobs.

Humanism

The third adult learning principle practiced in this organization was "*Humanistic Philosophy.*" Based on the work of Carl Rogers (1974) and Maslow (1970), one needs to place a high value on human beings. The Humanism stressed the importance of valuing employees and satisfying their needs in the workplace; it has been voiced in the literature of human resource development by several authors (Knowles, 1995; Gilley and Maycunich, 2000; Gilley and Eggland, 1989).

Humanist philosophy describes how people want to learn to improve their fit with the organization so they can progress in their career, and they should be encouraged to develop their potential (Wilson 1999). The CEO's statements reflected thoughts made by several participants on how employees are made to feel part of a family:

> We are all part of a family here. Everyone is invited to the corporate dining room from top executives through maintenance people. We are all equals. No one feels less than an executive here, from the janitorial people to top executives. We all sit together, and no one is made to feel like less than a CEO.

Another participant confirmed this thought:

> I feel that my contributions are of value to the organization; I really feel part of the organization. Although we have all the departments necessary to provide integrated services, we work together as one team.

Humanist's theories also recognize that people respond to a stimulus or need to upgrade their skills in order to keep their jobs (Wiltsher, 1999). In Spring of 2001, the organization was able to retain all its employees using this approach during difficult economic periods in the United States. One participant expressed:

> In spring of 2001, when the economy was experiencing a recession, the restaurant was closed for remodeling. To keep valuable employees, thirty employees remained on the payroll and came in during normal working hours from Monday through Friday for training sessions to learn about all aspects of the business. This allowed us to keep our jobs. Normally, we would have been forced to take other jobs; because of this, we are loyal to the organization.

Another participant added:

> In the restaurant business, very few organizations value their employees enough to keep them on the payroll in hard times, especially employees such as myself, who do not have much work experience or background in the business, but I was able to stay and learn about the business. This increased my desire to work for this organization.

Research supports that loyalty is very important in an organization, and that the culture of the organization should embrace the Humanistic Philosophy (Gilley and Eggland, 1989). During the research, several participants described how loyal the CEO and SMT of this organization are to its employees. The CEO expressed her philosophy:

> What makes a company are the teammates; I am loyal to them, and they are loyal to me.

Another participant made statements that were reflective of thoughts made by many of the employees:

> Our CEO knows when people are going to work hard, and she values her people. It cost the Organization a tremendous amount of money to keep people during this period, but she believed that her people were essential to growth of the company. In my experience, it unusual to work for an organization that values all its employees.

Transformative Learning Theory

The Fourth principle of adult learning practiced in this organization is *Transformative Learning Theory* by Mezirow (1978, 1991). "Adult learning can be viewed as an interpretation of information utilizing one's existing set of expectations through which meaning and ultimately one's life are constructed (Willyard and Conti, 2001, p. 325). By sharing personal experiences and asking questions, employees can grow and develop (Gilley and Maycunich, 2000). The company holds both formal and informal meetings in which employees have the opportunity to ask questions and to converse with other employees from all levels of the Organization. One participant said:

> At the recent training sessions for all the employees at the restaurant, many employees were not really sure what different departments such as the marketing department did. Employees watched videos, prepared reports; executives and managers of each department made presentations about the functions of their department. I was able to explain what the marketing department did for the restaurant. Employees were able to ask questions and learn about every aspect of the Company. We have a better informed and trained workforce, and employees see how they can be of value in the organization.

Another participant added statements that were similar to those made by many employees:

> After reflecting on what I had learned at the meeting, I was not only able to do my job better, but I saw how I could perform other jobs in the company. I am now taking courses at a cooking school, as well as examining other jobs.

It is very rare that someone like myself with limited formal education and job experience, who works in a position in the wait staff at a restaurant, has the opportunity to work and learn from employees throughout an organization. I feel more qualified and confident in my abilities, and I see many opportunities for growth in my career.

One member of the SMT reported:

> I have observed how employees have learned new ideas, and it has improved their performance on the job.

Literature on Transformative Practices supports ideas that open, honest, communication enables employees to learn and develop by allowing them to examine and reflect on their work (Gilley and Eggland, 1989). Employees often

share information informally in employee' offices or at luncheon meetings held in the corporate dining room. The CEO said:

Our philosophy is an "open door policy," and it is practiced by everyone in the Company. For example, I have a list of what I am now working on my computer in my office, and I encourage employees to come in and look at the list and share what they are working on with everyone. Sharing ideas with others leads to problem-solving.

Another participant added:

I feel comfortable in sharing information on my desk and on my computer with other employees. This Organization instills loyalty and trust that is practiced by everyone; we solve problems as part of one team.

Conclusions and Recommendations

The following section summarizes data and provides an analysis of participants' statements:

First, this study suggests that the training practices increased employees' understanding of the business and their ability to improve their performance on the job. The results indicated that the following training practices aided them in these endeavors: sharing life experiences in story telling, field trips, and monthly formal and informal meetings. Both the SMT and employees responded in interviews that employees learned as a result of these training practices. Employees reported feeling more qualified and confident, and the SMT reported that they observed employees' improved job performance. Further research could examine how the training techniques in this study could be used to increase participants' learning and training effectiveness in other organizations. This research supports ideas in the literature (Knowles, 1995; Willyard and Conti, 2001).

Second, this study affirms the importance of utilizing adults' life experiences in training. The study examined adults' life experience through three adult learning concepts: (1) Knowles, concept of Andragogy, was used effectively when employees shared their rich life experiences after listening to tapes, (2) Kolb's 4-step learning cycle was employed when employees' learned through trips to wineries and restaurants, and (3) Mezirow's Transformational Theory was effectively used both in the formal and the informal training practices with employees from all levels of the organization. Participants statements confirmed that they not only learned from examination of their past experiences, but that the new experiences also led to valuable new learning. Many of the practices used in this organization could be used in many other organizations.

Third, this research illustrated the connections in training, learning and development. Participants continually commented that the training practices allowed employees to feel valued and essential to the success of the organization. Furthermore, participants statements indicted that these practices promoted continued development of employees and high involvement in work processes. For example, employees ate lunch with each other in the corporate dining room daily. This practice enabled employees to get to know each other, ask questions and share their ideas. Also, employees felt valued when they were kept on the payroll during the remodeling of the establishment, and they received training on the operation of the business. Normally, when a restaurant is closed for any reason, employees are terminated. Statements made by employees illustrated how this made them feel valued, and it also increased their desire to work for the organization. Several participants credited these practices for attracting and retaining its employees and the continued growth of the organization.

Fourth, participants' statements indicated that the training practices described in this study promoted collaboration, teamwork and problem solving skills, "which is becoming a fundamental requirement of work" (Willyard and Conti, 2001, p. 330). Participants reported learning in various shared learning experiences and collaboration through monthly team meetings, group collaboration and informal communications. According to several authors, (Gilley and Eggland, 1989; Gilley and Maycunich, 2000; Knowles, 1995), these skills are required in today's workplaces.

Finally, the data from this study indicated that the support of top management in an organization can increase the learning and development for employees; this theme has been written about by several authors (Knowles, 1995; Gilley and Eggland, 1989; Gilley and Maycunich, 2000; Watson and Marsick, 1993). The CEO and the members of the SMT encouraged employees to share information with employees from all levels of the organization. Further research should examine how the support of top management of an organization increases or impedes the application of adult learning strategies in training programs.

How Research adds to AHRD and Recommendations for Further Research

This study adds to the field of HRD by examining theory and practice in the restaurant business. As in this study, "the role of training has broadened beyond training. Trainers are increasingly being asked to create systems to motivate employees to learn, create knowledge and share that knowledge with other employees in the company" (Noe, 2001, p. vii).

The underlying theme that emerged from this study appeared to suggest that individuals not only learned from using different approaches to learning from experience through trips, life experiences, story telling, collaboration, but that these practices benefited the organization. Although the CEO, SMT and employees often used different words and examples to describe their perceptions of how they learned and how the learning was applied in the workplace, patterns arose from that data of the participants that confirmed that the transfer of learning did occur. This research also suggests strong connections with the training practices used and the learning, development and high involvement for participants in their work. Support of top management was an important component for success using these training practices. Also, these training practices using life experiences promoted learning and problem solving which are essential in today's workplaces.

Future studies should focus in more detail on how training principles used in this workplace can advance these factors. As we continue to spend billions on training and human resource development, it is important to examine how the theory is being used in practice. Expectations that the role of trainers will continue to expand to meet learning challenges for employees in the workplaces, basic concepts, theories, and principles of adult education in this research provides in formation that can add to literature of HRD.

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The Legacy of Malcolm Knowles: Studying Andragogy Andragogically

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This paper describes the examination of a portion of Malcolm Knowles personal correspondence. This paper also details the unique journey of four graduate students as they struggled to understand andragogy and the man who developed it, using the methods and approaches that he advocated. This study does not intend to reach any conclusions about the father of andragogy. It does however present examples of Knowles' correspondence and outlines content themes, which emerged as a result of this research project. The end product of this research was the creation of a database that may be accessed for further research and study into the life of Malcolm Knowles.

Keywords: Andragogy, Adult learning, Malcolm Knowles

When Malcolm S. Knowles, father of andragogy, passed away in November 1997, he left behind a great legacy of his work for all who study the field of adult learning and Human Resource Development (HRD). At the time of his first official retirement from North Carolina State University, portions of his personal and professional correspondence as well as much of his library were donated to Syracuse University. In January 1999, his heirs donated the remaining portion of his personal and professional legacy to a professor of Human Resource Development at Louisiana State University (LSU). The donation consisted of his personal library, personal correspondence, date books, articles, workshop materials, and lecture notes. Most of this work was dated from the last twenty years of his life.

In September 2000, four LSU graduate students in the HRD doctoral program, enrolled in an independent study course to explore adult learning theory. During a description of course objectives, the availability of the Knowles' collection was discussed as a rich resource for a potential andragogical project. Several qualitative research projects were discussed including analysis of his book collection, lecture notes, articles, and personal correspondence. The students and professor decided upon a team project consisting of an exploratory content analysis of correspondence personally written by Knowles. The ultimate outcome of the research project was the creation of a database that would be available for future research and scholarly study.

The purpose of this paper is to describe the qualitative project and the andragogical process undertaken. This paper will report the research methodology utilized, identify themes that emerged from the content analysis and provide descriptions and quotations from each identified theme category. This paper also describes the unique experience of the student research team as they explored the personal correspondence of Malcolm Knowles using an andragogical process.

Theoretical Framework: The Project and the Learning Process

Andragogy is a set of core adult learning principles that apply to adult learning situations (Knowles, 1994). Malcolm Knowles spent the majority of his life linking these principles into a theory he entitled andragogy. The six core principles of andragogy include: 1) the learner's need to know, 2) self-concept of the learner, 3) prior experience of the learner 4) readiness to learn, 5) orientation to learning, and 6) motivation to learn (Knowles, Holton, & Swanson, 1998). Other factors that affect adult learning are individual learner differences, situational differences, and goals and purposes of learning. Andragogy works best in practice when it is adapted to fit the uniqueness of the learners and the learning situation (Knowles, Holton, & Swanson, 1998).

The Project

This section describes the project itself in terms of data collection and data analysis. Some preliminary data are presented to describe the project and its purposes. A more thorough presentation of findings appears after the process used by the authors is described in detail.

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Data Collection. There were six file drawers of personal correspondence containing letters between friends, family, students and colleagues. "Personal letters between friends and family members provide a source of rich qualitative data" (Bogdan & Bilken, 1982, p. 99). Bodgen & Bilken state, "The phrase *personal documents* is used broadly to refer to any first-person narrative produced by an individual which describes his or her own actions, experiences, and beliefs." (p. 97). Allport (1942) suggests that a review of personal written documents or material reveals a person's view of experiences.

Correspondence was sampled according to the qualitative data collection method for personal documents espoused by Bodgen & Biklen (1982). Five criteria were used to screen pertinent pieces of correspondence. These criteria included any letter that pertained to Knowles' philosophy, andragogy, family, learning, and mentoring. Only letters written by Knowles were sampled. However, letters written to Knowles may have been selected to provide further clarification or explanation. Additionally, text written by Knowles and text sent for Knowles' review were not included in the sample. Approximately one-third, or about 360 letters, of the entire correspondence collection were selected for team review and analysis. All selected letters were photocopied so as to preserve the integrity of the original documents.

The team used Bogdan & Bilken's (1982) process of developing coding categories. The team read through the data keying in on, "certain words, phrases, patterns of behavior, subjects' ways of thinking, and events" (p. 156) that were repeated and/or stood out. A coding system was developed to identify categories representing topics and patterns that emerged from the correspondence. Descriptive data collected was sorted so that the "material bearing on a given topic could be physically separated from other data" (Bogdan & Bilken, 1982, p. 156). The process of collection and coding began with an initial review of the 360 letters by each team member. The correspondence sample was divided into four sections, which were reviewed and circulated by all four team members. Passages or phrases, which met the criteria stated above, were highlighted for further data analysis.

Data Analysis. Data analysis was conducted according to Guba's comparative pattern analysis methods (1978). Guba (1978) suggests looking for recurring regularities in the data and sorting data into categories. "Categories should then be judged by two criteria: internal homogeneity and external heterogeneity" (1978, p. 53). Internal homogeneity refers to the extent to which the data that belongs in a certain category hold together, while external homogeneity concerns the extent to which differences among categories are clear (Patton, 1990). The researcher then works back and forth between the data and the categories, verifying the meaningfulness and differentiation of the categories (Guba, 1978).

From this first stage of analysis common themes began to emerge in Knowles' writing. The project team began to capture the themes on 3x5 cards. From this exercise, 37 themes emerged and several overarching categories appeared which lead to the formulation of five major categories. Some themes appeared in more than one category to reflect different perspectives on the same idea. The five categories included: professional, learning, philosophy, personality, and personal. The project team established internal and external homogeneity (Guba, 1978, Patton, 1990) through an iterative process encompassing data analysis, category creation and lively debate. Originally thirty-seven themes emerged with some themes appearing in more than one category to reflect different perspectives on the same idea. Through a reiterative process of cycling between the data and the categories, the researchers refined the meaningfulness of the themes that emerged and made adjustments (collapsed or expanded categories) as was directed by the data (Guba, 1978).

Once the initial categories and themes were recorded, the team reviewed each highlighted passage and assigned it to the appropriate theme and category. For example, a mention of a Knowles book in the correspondence would receive a code of 1-B. New themes and categories were established as the passages dictated. Categories and themes were added or collapsed in order to reflect an accurate representation of the correspondence. Figure 1 provides the complete listing of themes and categories developed.

Once the final categories and themes were revealed, the passages were ready to be entered into a database. Several options were considered, and upon the consultation of a local database expert, Microsoft Access was chosen. An initial form was created for data entry, and the team once again divided the correspondence to share the work of data entry. Form fields included: letter number, date of letter, recipient of letter, recipient organization, location, theme codes, passages, and frame of reference. The passages were input exactly as typed by Malcolm Knowles, including spelling, grammatical and typographical errors. After the completion of data entry, two stages of data verification were completed. The first involved ensuring the accuracy of the input of the passages and coding. The second involved reviewing each passage for clerical errors; correct assignment of codes, and to ensure the correspondence was preserved in its original format.

Figure 1. Final Themes and Categories of Knowles Personal Correspondence

Category 1	Professional	Category 4	Personality
	A – Accomplishments		A – Personality
	B – Books		B – Ego
	C – Fielding		C – Wit and Humor
	D – Travel		D – Politics
	E – Retirement		E – Tone of Letters
	F – Royalties		F – Warmth, Kindness and Encouragement
	G – Practice/Workshops		
	H – NOVA	Category 5	Personal
	I – Moves		A – Family
	J – Marketing Strategies		B – Wife's Illness
	K – Legacy		C – Wife's Role in Career
	L – Personal Research		D – Friends and Colleagues
	M – Mentors (His)		E – Health
	N – Review of Others' Work		F – Moves
	O – Opinion of Others		G – Retirement
Category 2	Learning	Category 6	Field of Adult Education
	A – Teacher vs Instructor vs Facilitator		A – Trends
	B – Motivation		B – Future
	C – Learning Contracts		C – Application
	D – Expectations as a Learner		D - Technology
	E – Learning		
	F – Mentors/Mentees	Category 7	Closings
			A - Closings
Category 3	Philosophy		
	A – Andragogy		
	B – Direction of HRD		
	C – Futurist		
	D – Philosophy		
	E – Suggestions		
	F – Research		
	G – Practitioner vs Scholar		
	H – Technology		
	I – Mentees		
	J – Teacher vs Instructor vs Facilitator		
	K - Priorities		

The Learning Process

As the four students in this course began cataloging Knowles' personal correspondence, they discovered several handouts and other teaching materials that had been created and used by Dr. Knowles. One such teaching aid was entitled, "The Assumptions and Process Elements of the Pedagogical and Andragogical Models of Learning". In this handout, Knowles compared and contrasted the differences between pedagogical and andragogical learning. Knowles suggested in his handout "these two models do not represent bad/good or child/adult dichotomies, but rather a continuum of assumptions to be checked out in terms of their rightness for particular learners in particular situations."

In the original handout, Knowles described seven process elements of andragogy (See Figure 2). Subsequent literature outlines eight factors that are to be considered in the design of an adult learning experience (Knowles, 1995; Holton, Swanson, & Naquin, 2000). The learning process is described here according to all eight elements.

Figure 2. Process Elements of Andragogy

Process Elements		
Element	Pedagogical Approach	Andragogical Approach
Preparing Learners	(Not addressed in Knowles handout)	Provide information, prepare for participants, help develop realistic expectations, begin thinking about content
Climate	Tense, low trust, formal, cold, aloof, authority-oriented, competitive, judgmental	Relaxed, trusting, mutually respectful, informal, warm, collaborative, supportive
Planning	Primarily by teacher	Mutually by learners and facilitator
Diagnosis of Needs	Primarily by teacher	By mutual assessment
Setting of Objectives	Primarily by teacher	By mutual negotiation
Designing Learning Plans	Teachers' content plans, course syllabus, logical sequence	Learning contracts, learning projects, sequenced by readiness
Learning Activities	Transmittal techniques, assigned readings	Inquiry projects, independent study, experiential techniques
Evaluation	By teacher, norm-referenced, (on a curve), with grades	By learner collected evidence validated by peers, facilitators, and experts. Criterion referenced

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Preparing the Learners. The course was initially designed as an independent study course. In reviewing these process elements, it is clear that they were manifested in the course from the beginning. The first class meeting met all of the andragogical approaches in preparing the learners. The professor provided information about the course, general expectations were made clear, possibilities for participation and collaboration were offered, and exploration of the content was discussed.

Creating the Climate. Because the course was formulated in an independent study format, the group was mostly responsible for creating the climate. However, the professor played a key role by demonstrating his trust in their academic abilities. One student commented the facilitator (professor) empowered the group by demonstrating confidence in their ability to be self-directing and to accomplish their goals. Another student stated that the professor, being a true facilitator, did not impose his "educational will" on the students, but rather served as consultant for the project. Throughout the course, all of the andragogical approaches to climate were present including a relaxed, trusting, informal, warm, supportive, collaborative and mutually respectful environment.

Planning. The group conducted its own educational experience planning. However, occasional meetings were held with the facilitator to solidify the project's path and obtain suggestions for proceeding. One student stated that periodic input was needed from the professor, but more as a guide than as a tool to "force his research will" on the group. These meetings involved a team analysis of the materials available for review, thoughts on the most efficient way to approach the subject, research methodology options, and ways to satisfy learner needs, interests, and objectives.

Diagnosis of Needs. Diagnosis of needs, setting objectives, and designing learning were all steps completed through mutual assessment and negotiation among group members and with the facilitator. Although there were no written learning contracts, learning objectives were identified through the project the professor and students had chosen to complete. The most difficult part of the course was deciding on a learning project.

Setting of Objectives. The group brainstormed project possibilities, considered individual learning outcome expectations, and compared learning style differences. The group understood that they had at their fingertips something special with the Knowles' collection. However, initially its contribution to the group's learning experience was somewhat unclear. One student debated the value of such a project due in part to her background and mental model of research being grounded in quantitative research. Another student seemed to agree when she commented that the group brought to the table its educational research biases and schema. Another student found that the group's "reservoir of experiences" was a definite plus in the exploration process of the life of the "father of andragogy".

Designing Learning Plans. One major cause of frustration for the group was the fact that this was the group's first totally andragogical learning experience. Most of the group members exhibited some discomfort with the lack of structure and direction associated with the nature of the learning project. One student's frustration was evident when she remarked that she was "most uncomfortable with the ambiguity that comes from no direction from an instructor". Another student described the first few meetings as though she was "moving through the learning process blindfolded, feeling the way as she went." The andragogical learning process was not an easy one, at first.

Several students commented that the composition of the group was complimentary and critical to the overall direction of the learning experience. Two of the students were firmly grounded and biased toward quantitative research, while the other two were comfortable with either a qualitative or quantitative research direction. The difference in views of research turned out to be positive. One student remarked that the two students who exhibited an appreciation of and comfort level with qualitative research were able to "create a vision and excitement" for the Knowles research project. The two students, both grounded in quantitative research, remarked that it was a "stretch" to embrace the project in its early stages, but the direction became clear as time passed. One student commented that the group's ultimate success was due to their ability to "work within our strengths and demonstrate patience and understanding when weaknesses were evident." Yet another student stated that "tension existed between meeting group and individual needs as well as meeting all course expectations." While some group members initially struggled with the lack of structure and direction, they quickly became self-directed when our project began taking shape.

Learning Activities. Learning activities were discussed. In actuality, they were lively debated. As one student said, "it also took some time for the group to become fully understanding and respectful of each other's individual

differences, but I don't think anyone ever felt rejected or hurt by our dialogues." Finally, jointly decided-upon activities were outlined, and a tentative timeline was developed. Learning activities included reviewing the correspondence, creating a paper database, scanning and reviewing the correspondence for themes, categorizing, labeling, constructing a computer database, proofing, and finally, reviewing the data obtained.
Many hours and substantial group revisions were necessary to complete these activities. The group entered the performing phase through the learning activities (Tuckman, 1965), and one student commented that the professor/facilitator came to the group's "educational rescue whenever a research roadblock surfaced."

Evaluation. Regarding the last process element of evaluation, several discussions were held among the students and with the facilitator to discuss the criteria. There was some concern regarding the ambiguity related to the determination of final grades by those students most comfortable with a traditional method of learning. Evidence of learning for this group would come from a final exam and through examination of the group's final project: a complete and accurate database, an outline of the research methodology, the submission of all materials produced, and a sampling of the database reports.

Each student commented on the value of having this learning experience. One student remarked, "I have exceeded my personal learning objectives for the course". Another student commented, "For the first time, theories/models came alive." Experiencing andragogy first-hand was proof that engaging adult learners in the entire learning process was of value and produced positive learning outcomes. One student remarked, "as was evident in my experiences in this course, andragogy is flexible enough to be used effectively in group situations, and because of the flexibility inherent in the model, andragogy deserves to be a core part of learning design in HRD."

Presentation of Data

Malcolm Knowles came back to life for each of the team participants. His warmth, understanding, consideration, and love for adult learning were obvious in his personal correspondence. There were 356 piece of correspondence used to develop the database. Seventeen (17) of the pieces of correspondence were from 1951-1979. The majority of the correspondence (180 pieces) occurred between 1980-1989. The remaining 159 pieces were written between 1990-1997.

Seven Emergent Themes

According to Guba (1978), the task of converting the passages or phrases found in Knowles' personal correspondence into systematic categories is a difficult one and no infallible procedures exist for performing it. The coding system used to organize the descriptive data that was collected consisted of seven categories with 37 themes as shown in Figure 1. The seven categories were based on Malcolm Knowles the person: his professional life, his strategies for learning, his philosophy for learning, his personality, philosophy for life and learning, his relationships with friends and family, his futuristic approach to adult education, and his closing remarks in his correspondence. Category 1, "professional", had the largest number of passages or phrases coded with 29 percent. The number with the smallest number of passages or phrases coded was "field of adult education" with six percent. Only three pieces of correspondence did not have some type of closing remarks, category 7.

Descriptions and quotations are the essential ingredients of qualitative inquiry (Patton, 1990). Based on the categories that were developed, there were some 1,429 entries that became part of the database. A breakdown of these entries by category is shown in Figure 3.

Professional Life and Legacy. In Category 1, the team looked at Knowles' correspondence relating to his professional life and his numerous accomplishments. His correspondence reflected his interest in writing as well as his desire to assist others in their writings by reviewing their works. In his letter of October, 1989 pertaining to materials for an advisory panel meeting he writes "I have read them carefully, mostly on airplanes to and from Seattle, and I am impressed with their comprehensiveness, clarity, and scholarliness." In another letter of September, 1990 he writes "I started reading (name of book). . . last night and could hardly put it down to get some sleep. I took it up again right after breakfast this morning and am feeling exhilarated. What a beautiful piece of work. So well written. So very comprehensive." He was adamant about shaping the marketing strategies for his books and he kept detailed records of his royalties. He traveled all over the world to countries such as Australia, Japan, Sweden, Korea, Okinawa, Malaysia, and Thailand as well as the United States to attend conferences, make presentations, and conduct workshops as noted in the letter Knowles wrote in May, 1982: "Since my retirement from NC State University two years ago I have been doing an average of four faculty-development workshops each week in community colleges and universities across the country. Attendance at these workshops averages between 300 and

400 participants each week". This passage reflects Knowles personal work ethic and commitment to the field – where in actuality he did not "retire" when he left "official" employment but continued to have an active professional life. Even in March, 1994 he was staying active and in contact with students. He wrote "I am keeping some contacts with students by doing an 8-session-per-semester research seminar at the U. of Ark." In another letter during the same time period he wrote "I still do some writing–mostly doing forewords to other people's books–and very occasional traveling." In January, 1995 Knowles admits that he was beginning to slow down: "I donated my computer to an adult school a couple of years ago, so am even off the information highway."

Figure 3. Number of Entries by Category in Knowles Personal Correspondence

Category 1	Professional	# Entries by Code	Category 4	Personality	# Entries by Code
	A – Accomplishments	43		A – Personality	110
	B – Books	129		B – Ego	69
	C – Fielding	86		C – Wit and Humor	62
	D – Travel	72		D – Politics	9
	E – Retirement	22		E – Tone of Letters	175
	F – Royalties	18		F – Warmth, Kindness and Encouragement	169
	G – Practice/Workshops	63			
	H – NOVA	4	Category 5	Personal	
	I – Moves	5		A – Family	21
	J – Marketing Strategies	37		B – Wife's Illness	47
	K – Legacy	10		C – Wife's Role in Career	19
	L – Personal Research	12		D – Friends and Colleagues	50
	M – Mentors (His)	13		E – Health	15
	N – Review of Others' Work	153		F – Moves	13
	O – Opinion of Others	118		G – Retirement	36
Category 2	Learning		Category 6	Field of Adult Education	
	A – Teacher vs Instructor vs Facilitator	14		A – Trends	32
	B – Motivation	22		B – Future	27
	C – Learning Contracts	42		C – Application	87
	D – Expectations as a Learner	7		D - Technology	4
	E – Learning	54			
	F – Mentors/Mentees	59	Category 7	Closings	
				A - Closings	353
Category 3	Philosophy				
	A – Andragogy	53			
	B – Direction of HRD	14			
	C – Futurist	17			
	D – Philosophy	82			
	E – Suggestions	112			
	F – Research	38			
	G – Practitioner vs Scholar	10			
	H – Technology	12			
	I – Mentees	4			
	J – Teacher vs Instructor vs Facilitator	2			
	K - Priorities	52			

Learning. In Category 2, we looked at his correspondence related to learning. Knowles was a proponent of the use of contract learning for many of his classes. In November, 1981 he wrote: "I am in the process of putting together a book on contract learning which I am building around a collection of learning contacts actually developed in the field." Knowles also believed that mentoring was an important part of the adult education experience. In August, 1989 he writes: "Yes, I would be comfortable with ten (or perhaps even twelve) mentees. Since I am cutting down somewhat on my travel–at least on the length of my trips–I can give a little more time to assessments, dissertations, and other mentoring. An yes, I would be willing to serve as an assessor in Human Development." Knowles' comments in his letter July, 1990 truly reflect his feelings of the reward from teaching and also from his students: "As you no doubt have already discovered, the achievements of one's students are the chief psychic reward of a professor." Even in his final months (letter dated March, 1997), Knowles acknowledged his desire to continue a mentoring relationship, however his health would not permit.

Philosophy. Knowles' philosophy for living and working was examined in Category 3. His philosophy carried over into the learning and adult education categories. When asked to provide information on his philosophy in March, 1991 he responded "I think the easiest way for me to give you an update on my philosophy is the lend you the enclosed boo, THE MAKING OF AN ADULT EDUCATOR, 1989." Knowles willingness to help others and to set priorities was part of his philosophy of life. In 112 entries he makes suggestions to the correspondent. Such a

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suggestion is found in his letter of August, 1990: "I have reread the three pieces of your writing that you sent me on June 20, and they are very congruent with the guidelines I have for myself: (1) Talk out of my personal experience rather than from a pedantic podium. (2) Avoid pontificating. (3) Illustrate generalizations with examples. (4) Select a handful of people you know who are representative of the audience you are trying to reach and dialog with them. (5) Think of writing as a form of self-expression, like painting a picture,–as a way to have some fun."

The setting of priorities changed for Knowles after he retired. He stated in his letter of February, 1986: " Within a couple of years I found myself accepting assignments in which I really wasn't interested merely to cover the overhead and spending more time that I wanted to on administrivia. . . . I am so enjoying my freedom since retiring from the university–doing only what I want to do and do best, and doing it for myself–that I wouldn't want to pull myself into a position of becoming obligated to doing things to support institutional overhead."

Personality. In Category 4, Knowles' personality, wit, and humor were examined in his personal correspondence. "I stamped him 'approved' with the award of The Malcolm Knowles Seal of Andragogy." His warmth was revealed in his letter of January, 1984 in which he states: "Above all, though, know that I love you and respect you, and worry about something that I don't understand. I need you to love and respect me, too, and help me understand." He did enjoy politics and commented on President Clinton's stand on issues on several occasions. Knowles wrote to President Clinton in February, 1993 and provided the following comments: "The fact that the concept of lifelong learning was mentioned so often by the presenters and in the discussion has led me to believe that the enclosed document *Creating Lifelong Learning Communities*, might be useful to the people who will be planning the educational proposals for the new administration. I am also enclosing a contribution to support the work of the transition team and confirm my enthusiasm for the start is has made. I prepared the document for a task force of the UNESCO Institute for Education about ten years ago, and it has been cited frequently in the educational literature. I am enclosing a brief biographical summary simply to establish my qualifications for writing on this subject." There was a certain format that he used in writing. He always offered a positive comment in the first sentence, then he provided suggestions, and finally, he would close based on what seemed to be the level of friendship that existed between him and the recipient of the correspondence. The team really felt his presence through his writings.

Family, Friends and Colleagues. In Category 5, we discovered the meaning of family and friends to Knowles. He and his wife had worked on several books together and traveled together to conferences. She was his "right hand". Therefore, when she became ill and couldn't travel anymore, it was an extreme disappointment for him. Their first retirement was in North Carolina. However, he eventually retired to Arkansas in order to be close to his son and family as his own health began to fail. Knowles wrote of his family situation in February, 1994: "We, too, would be much happier living in Cambridge. We feel so good about living five minutes from our son and his family. We have one grandson in his second year at Harvard and a granddaughter who is going there next year, so we would have family in Cambridge, too. During the last several years I have cut down greatly on my travel, since Hulda can't go with me any longer." In September, 1994 he writes of his relationship with his wife: "Hulda and I are doing just fine, enjoying being lovebirds in our eighties." In correspondence in January, 1995 he admits to being fully retired: "I'll be eighty-two next August, and am now fully retired and living in a life-care home with my wife, who is the same age and very disabled from a stroke she had eight years ago. So I don't give any more speeches, attend conferences, or travel further than to the supermarket." He further provides insight into his retirement in April, 1995: "As you probably know, I am no longer traveling, so the mailman is my primary contact with the outside world."

Field of Adult Education. Category 6 primarily referred to the field of adult education, the changes that were taking place, and the technology that was providing more opportunities for adult educators. In correspondence of November, 1981 Knowles writes, "The last time I was in Columbus I picked up the folder describing options and was terribly impressed by the imaginative way you folks are meeting the needs of nontraditional students." In correspondence of April, 1983 related to a grant application he states "I think that your project is the most exciting approach to reorienting elementary education to self-directed learning that I have seen." The importance of andragogy can be seen in his correspondence of February, 1986 where he writes: "I have been thinking (in between other tasks) about your idea of starting an Andragogy Institute, and am ready to start sharing ideas. I see this though as only starting a dialog–not presenting a plan. . . .I have lots of evidence that there is a growing need for this kind of service as higher education institutions experience and influx of adult learners and as industry expands its human resource development programs. I can visualize that if we created an Andragogy Institute I could train a cadre of people to do what I do so it wouldn't be dependent upon my availability, interests, or engery." Knowles' letter in

February, 1989 wrote of an institution with an external degree program that he was associated with and considered a model for future graduate education "...for the simple reason that they make it possible for experienced practitioners to pursue graduate studies without leaving their jobs to live on campus or to attend classes that interfere with their work schedules." Other comments about this institutions program were " . . . has found ways to provide the interaction among students and between faculty and students, that is often associated with campus living, through short-term summer sessions and regional seminars, the telephone, and an electronic network".

Closings. The closings in Category 7 were coded because they provided an insight into the level of intimacy that existed between Knowles and the recipient of the correspondence. When Knowles accepted his position at North Carolina State University in 1974 his closing was "I am looking forward to working with you and your colleagues with great pleasure." His closing for a letter to a colleague in November, 1981 was "I hope that you can restore my morale." The closing in a letter February, 1984 was "Hulda sends her love." Correspondence to a student in April, 1989 was closed using "With pride in you," and another in August, 1994 closed "With pride and appreciation." Some other closings were "Affectionately," "Lot of hugs," "Warmly," and "With tender caring." A closing that also showed Knowles wit as well as the level of intimacy was in November, 1989 which was "Give (name of person) our love and keep some for yourself,". In February, 1997 after Knowles had become ill, his closing was "Painfully yours,".

Implications for Future Research and Contributions to HRD

The database produced as a result of this effort will provide scholars in the years to come a window into the personal and professional ideals of Malcolm Knowles. As a result of this analysis, the research team gained valuable insight into certain aspects of his life that are ripe for future exploratory study. First, a picture emerges from his words of a man possessed with great wit, humor, warmth, and kindness. Further study of this personality, as witnessed through his correspondence, can provide scholars with rich biographical information. Second, Knowles demonstrated a strong commitment to the value of a mentoring relationship throughout his correspondence. He continued, up until his final days, to be a mentor to students and colleagues across the field. Future study of these mentoring relationships will provide researchers with a gauge of his impact across the field of adult learning and HRD. Additionally, his correspondence may provide insight into his use of andragogical principles in the mentoring process.

Malcolm Knowles was a man dedicated to his beliefs. By further analysis of his correspondence, scholars may find evidence of his convictions and philosophies related to adults, life and learning. Finally, a strong theme throughout his correspondence was the importance of his relationship with his wife, Hulda. Her role in his life and its subsequent impact upon his personal and professional successes should be studied further. Preliminary analysis suggests she played a larger role in his professional life than may have been noticed.

Malcolm Knowles, as one of the founding fathers of our field, is worthy of the focus of future research. By delving into his personal writings, HRD scholars will have the opportunity for a more intimate look at the man, his ideas and beliefs. The creation of this database represents the first brush strokes in painting a portrait of Malcom Knowles.

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Facilitating Learning with Graduate Students in Human Resource Development

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The purpose of this study was to investigate the ways in which constructivist teaching strategies influence the learning processes of human resource development (HRD) graduate students in the context of higher education. Two groups of students were taught to use concept mapping as a constructivist strategy and then were followed over the course of a year to determine the impact this strategy had on their learning. Implications for teaching in higher education are drawn.

Keywords: Constructivist Learning, Concept Maps, Learning Strategies

Human resource development (HRD) graduate students often enter higher education programs relying on learning strategies that have worked well for them in the past (Merriam & Caffarella, 1999). These previous learning strategies often include rote learning, passive learning, memorization and recall of facts. Assisting HRD graduate students to broaden their learning strategies is a major factor contributing to their academic success in higher education (Gibbons, 1990; Novak, 1990; Smith, 1982) and to their ability to function in the workplace. The purpose of this study was to assist HRD graduate students to enhance their learning through the application of teaching strategies that foster a constructivist approach to learning.

Conceptual Framework

Merriam and Caffarella (1999) define five different learning orientations including: behavioral, social, humanistic, cognitive and constructivist learning. They believe that within each of these learning orientations different assumptions exist about the nature of learning and the strategies that instructors can use to facilitate learning. Since the purpose of this study was to assist HRD graduate student to broaden their learning strategies, the constructivist learning orientation provided the overall conceptual framework for this study.

Constructivist learning has evolved to include multiple approaches and perspectives. For the purpose of this study, constructivist learning is seen as a cognitive approach that locates cognition and understanding within the individual. The most salient feature of this perspective is the "notion that learners respond to their sensory experience by building or constructing in their minds, schemas or cognitive structures which constitute the meaning and understanding of their world" (Saunders, 1992, p. 136). Constructivists, writing from this cognitive approach (Ausubel, 1986; Brunner, 1990; Novak, 1998; Piaget, 1966), express the belief that individuals create knowledge by linking new information with past experiences to create a personal process for meaning-making. Within a constructivist framework, the learner progressively differentiates concepts into more and more complex understandings and also reconciles abstract understanding with concepts garnered from previous experience (Novak, 1998). New knowledge is made meaningful by the ways in which learners establish connections among knowledge learned, previous experiences, and the context in which learners find themselves. Lambert et al. (1995) identify multiple principles of constructivist learning theory, which include the following major points: (1) knowledge and beliefs are formed within the learner, (2) learners personally imbue experiences with meaning, (3) learning activities should cause learners to gain access to their experiences, knowledge and beliefs, (4) learning is a social activity that is enhanced by shared inquiry, and (5) reflection and meta-cognition are essential aspects of constructing knowledge and meaning (pp. 17-18).

Novak (1998) operationalized constructivist learning theory by creating concept maps. A concept map is a schematic device for representing a set of concept meanings embedded in a framework of propositions (Novak, 1998). Concept maps are created with the broader, more inclusive concepts at the top of the hierarchy, connecting through linking words with other concepts that can be subsumed. This tool helps facilitate understanding of conceptual relationships and the structure of knowledge. Novak (1990) found in an analysis of multiple studies using concept maps that the technique promoted novel problem solving abilities, raised mean scores on achievement of content units, decreased students' anxiety levels and increased students' positive attitudes toward the content of study.

Three important processes are employed in the creation concept maps. First, lower order concepts are subsumed under higher order concepts. This subsumption process assists learners to understand the nature and

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structure of knowledge by locating concepts in relation to each other. Second, concepts are progressively differentiated into more and more complex structures. The process of progressive differentiation is similar to the analysis process, as the learner breaks down concepts leading to finer distinctions. Third, the process of integrative reconciliation is used to create horizontal links and synthesize information from the left and right side of the map. These horizontal links represent the learner's ability to synthesize conceptual information during the process of creating unique meaning structures.

In order to study how constructivist strategies impact the learning of HRD graduate students, constructivist teaching strategies were employed in two graduate courses in an HRD/adult education graduate program.

Research Questions

In this study, HRD graduate students were taught to use concept maps. The extent to which this strategy contributed to a change in learning strategies was assessed by evaluating; (1.) the change in student concept map scores during a one-year time frame, and, (2.) HRD graduate student responses to tape-recorded interviews. The following research questions were advanced to guide this investigation.

- When HRD graduate students learn to use concept maps in one course, will that learning strategy carry over to subsequent courses in which the student enrolls?
- How does the use of concept maps as a learning strategy change the thinking of HRD graduate students?
- Can concept maps transform HRD graduate students' prior learning strategies?

Methodology

During semester one, HRD graduate students in two different courses were taught to use concept maps as an integrated part of their course work. Students developed concept maps to reflect the course readings, plan course projects, and to compare and contrast information from course discussions. In learning to use concept maps, students were taught to follow the steps outlined in Table 1.

Table 1. *Steps in Constructing a Concept Map*

1. Identify the most general concepts first and place them at the top of the map.
2. Identify the more specific concepts that relate in some way to the general concepts.
3. Tie the general and specific concepts together with linking words in some fashion that makes sense or has meaning to you.
4. Look for cross-linkages between the general and more specific concepts.
5. Discuss, share, think about and revise your map.

(Adapted from Novak & Gowin, 1984)

Twenty-one students from these courses were randomly selected and invited to participate in this study. Following IRB approval, students gave consent to have their course work reviewed and to be interviewed twice over the academic year.

A mixed-method design using both quantitative and qualitative analysis was created for this study. The first and final concept maps created by study participants in the first semester were scored according to the scoring formula created by Novak and Gowin (1984) and depicted in Table 2. Reliability was established by obtaining two independent scores on each map. Inter-rater reliability was established at .80. Data analysis included calculation of group means and comparison of these means using a dependent t-test.

At the end of semester one, interviews were conducted with participants about their use of concept mapping. During the interviews, HRD graduate students were asked the following questions: 1. What was it like to use concept maps as a learning strategy? 2. What did you learn while doing concept maps? 3. Where else have you used the maps since the completion of your course (if at all)? 4. How was doing the

Table 2. *Concept Map Scoring Formula*

1.	Relationships	(if valid)	=1 point
2.	Hierarchy	(for each level)	=5 points
3.	Cross links	(for each cross link)	=10 points
4.	Examples	(for each example)	=1 point

(Adapted from Novak & Gowin, 1984)

maps the same or different than other learning strategies you have used previously? 5. What did you like most/or like least about using concept maps? 6. What changes, if any, did you see in your thinking ability since using concept maps? 7. What was the most significant learning you remember from this course? 8. If you were going to describe concept mapping to another graduate student, what would you say? 9. How do you see using/or not using this learning strategy in the future?

Study participants were followed during semester two. Concept maps created by the HRD graduate students at the end of semester two were scored. At the end of semester two, study participants were interviewed a second time to determine if they continued to use concept maps as a learning strategy and how that strategy impacted their thinking and learning.

Interview data was analyzed using a modified constant comparative method (Glaser & Strauss, 1967; Patton, 1990). First, all interviews were coded and themes identified using the qualitative data analysis software package N*VIVO. Then, coded data were compared from the first set of interviews to the final set of interviews by developing a system of matrices for comparison and contrast (Miles & Huberman, 1994). Finally, a summary concept map was created to synthesize the themes identified in both sets of interviews.

Findings

Findings from this study indicate that using concept maps impacts HRD graduate student learning. The presentation of findings from this study will first focus on the changes in concept map scores and then explore student interview data related to learning with maps and the use or non-use of maps at a one-year follow-up.

Changes in Concept Map Scores

In this study concept maps were collected from participants at three separate points. In the first semester of the study, the first and final map created by the students were collected and scored. During the second semester, the final map that participants created, (if they did create a map in semester two), was collected and scored.

Data analysis (Table 3) demonstrates a group mean of 44.81 on the first concept map and 121.43 on the final concept map of the first semester, for a difference of 76.62. The t-value comparing the first to final map was –6.614 (p=.001). The data indicate a statistically significant difference between the first and final map scores of the first semester.

Table 3. *Changes in Concept Map Scores over First Semester*

Variable	No. of Cases	Mean	Difference
First Map of Semester 1	21	44.81	-76.62
Last Map of Semester 1	21	121.43	

P = .001 t-value = -6.614

Students were followed during the second semester of the study, to determine if they continued to use mapping as a learning strategy and if they did how the maps compared to the first semester. Data indicate that 65% of students in this study continued to use mapping into the second semester. Data indicate the mean score for the last map during semester one was 121.43 and the mean score for the last map in semester two was 120.22, for a change score of –1.21. The data indicate no significant difference between those participants mapping at the end of semester one and those mapping at the end of semester two.

Participants were also interviewed at two points during this study, at the conclusion of semester one and at the conclusion of semester two. Participants were asked during the interviews to describe their experiences with mapping as a learning strategy and to analyze how their thinking had changed or not changed through the use of mapping. Participant responses were categorized into two areas for presentation of findings: learning with maps and map use on follow-up.

Learning with Maps

Study participants indicated that to learn effectively with maps, they first had to develop the skills in map construction and to understand the mechanics of mapping. Additionally, participants reported that often their initial reaction to mapping changed and developed over the time that they used mapping.

Participants stated that part of what they enjoyed about the process of mapping was the focus on organization, analysis and understanding. Participants indicated that through the process of organizing and analyzing, they developed a more holistic picture of what they were learning. One participant stated:

> *It made you look at whatever it was you were doing in its entirety. It made you look at it as a whole. And then start breaking it down by concepts and then you would rebuild it by linking . . . You feel the knowledge building. You just feel yourself seeing things differently than before you started doing that.*

However, some participants expressed difficulties in developing maps including: finding time to complete the maps, deciding on the level of detail to include and overcoming their lack of desire to change how they learned. Participants indicated that mapping as a learning strategy was too demanding and took up too much time.

> *. . . it is just another task to do when you feel overwhelmed. It takes more time than just reading the text . . . I think it has a lot more value than what it feels like you are doing at the moment.*

Participants also expressed how difficult it was to change learning strategies that they had used in the past. Changing old habits was time-consuming and difficult for most participants in this study. One participant indicated:

> *But, I guess what I hated the most was that I had to change my thinking mode. It is before, like, well, I am just reading this information, and I am picking out what I see is in the writing or what the writer is trying to present. I guess I just didn't like the idea of changing old habits and doing things differently.*

Understanding One's Own Learning

A major finding of this study was that concept mapping helped HRD graduate students to understand their own learning processes. Additionally, they were able to explain that they developed their learning processes through the use of learning strategies such as linking, developing interrelationships, creating meaning schemes, and constructing knowledge. Participants reported that the maps helped them to understand how they think, to think in a broader fashion, to search out complicated relationships, and to organize information so that they remembered it in a much more comprehensive way. For example,

> *I learned a little bit about how I think based on how I put the concept map together. I learned a little bit about what challenges me, what comes easy to me. I tried to pick things to concept map that I didn't understand so that I would understand them afterwards.*

Another participant described how she developed understanding by moving from larger concepts to smaller concepts and back again.

> *I learned to use another part of my brain. I learned also to think globally because this is going from big ideas and main ideas to smaller ideas, subtopics, so I learned to modify how I think about information. I also learned to show more linkage of information.*

Finally, participants discussed how the maps helped them apply information to their experiences and at the same time remember that information in a new way.

> *. . . instead of it being information given to me and stored away in my head, the most significant thing is that when I can apply things to my real life experience, I have a better time understanding them, better time remembering them. So to me that is a big deal.*

Learning Strategies

As participants came to understand their own learning, they also developed an understanding of a number of learning strategies that they developed as a result of using concept maps. Participants reported that their understanding of how to link concepts, develop interrelationships, create meaning schemes, and construct a knowledge base developed through the use of mapping.

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Linking. Participants in this study were asked to describe their most significant lesson learned from the course in which they were enrolled during the first semester. A large percentage of the participants expressed the opinion that learning to link concepts was a new learning strategy for them and a major discovery in their own learning. The following participant expressed the value of learning to link concepts this way:

> *What I discovered in my own learning was that indeed there were connections between ideas and concepts that I hadn't picked up on just in reading the material. But it was in the diagramming of the concept map and I usually did it in two stages. My first stage was I threw enough stuff down on paper as I could [sic]. My second stage, I let it sort of sit and simmer like a pot on the back burner for awhile. Then I would come back and make some aha's, oh I see some relationships here. And that helped to open up the interconnectedness of what I had been looking at and didn't initially see.*

Another participant expressed a common theme evident in many HRD graduate learners' experiences in this study. Participants indicated that they just had not thought about the relationships between concepts previously until confronted with a learning strategy that asked them to make those connections.

> *The linking. I never gave it thought before the relationships between levels in the hierarchy and between different concepts within the map. That would probably change my approach to a lot of things now.*

Interrelationships. Participants in this study also described a step beyond linking. They indicated that as a result of making links between concepts, they began to understand and search out interrelationships between concepts that created new meaning for them. As one participant explained:

> *As I did the concept maps, I was particularly sensitive to find what the interconnections were. I did our case studies and I went through the readings; whatever we had to concept map, I was more aware of the connections, what are the relationships, because I knew eventually I had to produce that in the map.*

Another participant described how after learning to make links, the process of developing interconnections helped him critique his own thinking by highlighting false connections he had made previously. As a result, he felt that finding the connections was a way of double-checking his understanding of new material.

> *After I did a couple of maps I realized that these were the things that I was trying to do mentally. Sometimes I would see the mistakes or let's say just mis-connections. Like no, this really doesn't connect to this. This really should connect over here. You could almost, like, check your math. It is like doing math the long way as opposed to taking some shortcuts. Every once in awhile you made a mistake and then you had to go back. It was kind of like long division.*

Creating Meaning Schemes. A number of participants also indicated that subsequent to linking and searching out interconnections, the mapping exercise fostered the learning process or strategy of creating meaning schemes. Most participants described these schemes as a way to organize and structure information. Additionally, participants indicated that in the process of creating schemes of information their ability to recall the information was improved.

> *Well, doing the concept map forms the schemes for learning. It forced me where the author didn't put a framework, to put one. So I believe that although it takes longer to read and do a concept map in order to retain what you are doing or to develop an idea that way, that I definitely knew after doing a couple that the retention was going to be greater because the scheme was etched in your mind then.*

Knowledge Construction. Finally, participants indicated that through the process of developing a concept map, they learned that linking, developing interrelationships and creating mental schemes all helped them develop their ability to construct a knowledge base for themselves. One participant expressed the way she began to understand the process of creating a concept map as similar to creating a mosaic. She stated:

> *I think that helped with the whole process because with a mosaic you have a bunch of little pieces and you are kind of figuring out what is the best way to array them, how many little pieces you have, and what comes after what. That concept plus the learning fell in with my understanding or belief of how adults learn. I guess it would be kind of a constructivist approach as we build on what we already know, we add too, we might reshape what we already have in our brains, based on what new stuff comes in. It may be reshaped or you may just add to your database. I felt like the concept mapping process really helped with that.*

Another participant describes a similar connection between developing concept maps and constructing knowledge. She stated:

I really believe in concept mapping because I believe in constructing knowledge. Dialog, discovery, constructing knowledge, all that stuff. It really does fit in. Maybe that is why I do like it because it does give you a chance to kind of sort stuff out and construct knowledge.

Changes in Thinking

At the conclusion of the first semester of this study, participants were asked if their thinking changed as a result of the use of concept maps and, if so, how. Participants described how this strategy was different than other learning strategies and that their thinking did change. Participants expressed how they analyzed concepts in more depth and they felt they had the ability to make connections across multiple bodies of knowledge. For example, one participant stated:

It is different because any other strategy, taking notes, putting together a formal outline, one thing after another. Whereas, the concept map gets you to think outside of the box. It gets you to see how things relate rather than how one thing is broken down. So it was a different way of approaching something, taking a different perspective on learning, I thought, which was refreshing for me.

Finally, one participant indicated that the mapping process helped her to think better and also helped her to recognize that she really developed an understanding of what she learned.

I don't know if this makes sense, but concept mapping allowed me to think better. It really allows you to understand what you are reading and as you are doing it, you are putting it together, and all of a sudden when you are done and you think to yourself when you look at sort of the arrows that are going back and forth and the connections that you have made, and you sort of look at yourself and you think, wow, I guess I really get that. I get it thoroughly as opposed to something you just read and five minutes later you asked me what I just read and I am not able to answer the first question.

Follow-Up After One Year

One of the major research questions this study addressed was do HRD graduate students continue to use concept mapping as a learning strategy even when they are in courses that do not require them to do so. In this study, 65% of HRD graduate learners reported that they did continue to use this strategy. Those participants who reported that they continued to use mapping explained that they did so for a number of reasons. They seemed to use maps to understand course material in subsequent graduate courses. They also relied on the maps as a way to understand particularly difficulty material. Many participants reported that when they felt "in trouble" in a course or that they "did not get it," they would try mapping out the material as a way to develop their understanding. Additionally, learners tended to use maps to frame projects for subsequent courses or work-related projects. One participant described how he had a big project to do at work and as a way to help his team understand the scope of the project, he mapped it out and shared the map with them. Another student described how she used a concept map in a subsequent class to demonstrate decision making.

The HRD graduate students who did not use concept maps in the subsequent semester (35%), reported that they chose not to because they were not required, they did not have time or they did not have the software they needed to develop the maps. However, the biggest barrier to creating maps for this group was time. Over and over again, these learners complained that the process took more time than they felt they could invest in their course work.

Interestingly, in this study both learners who used concept maps in subsequent semesters and those who did not still reported changes in their thinking at one-year follow up. For example, students who used the mapping tended to report that the maps increased their focus, understanding of relationships, and thinking processes. The following quote is from a learner who did use the maps in the follow up semester:

I am more conscious, especially in the class I just had, I was conscious of how do these different concepts interrelate. What are the connections that I am making in my mind? That is why I went to the concept map. Because my mind was doing stuff, but I wanted to get it down on paper so I could look at it.

On the other hand, the learners who chose not to use concept maps in subsequent semesters still reported changes in their thinking. These learners reported being able to identify interconnections, organize information and develop mental schemes for their reading. The following quote is from a learner who had not used mapping in the subsequent semester:

Although I haven't used them, I think in the way I organize my textbook and in how I write some of my notes, that it is actually a variance of a map. I never used those little stickies before. I highlight them in different colors now. What I will try to do is try to group them according to color, so that when go back I

can tell that this one kind of goes with this one which is yellow. This one is hot pink and I have found that it helps to organize in that way.

Discussion

Results of this study indicate that HRD graduate students learned to develop concept maps and, through the process of using this constructivist learning strategy they developed their thinking abilities and grew to understand their own learning processes. Also, the quality of the maps constructed at the end of the first and second semesters was virtually the same. This was somewhat surprising as one would anticipate that students' mapping skills could deteriorate if they were not required to construct maps. Rather, findings indicate that the mapping skills remained constant throughout this study. This finding is encouraging as it indicates that mapping potentially has a long-term impact on HRD students' learning strategies. As such, more research is needed on when, how and for how long these changes in thinking are evident.

A number of issues surfaced in this study. First, it was surprising that many HRD students participating in this study began with so little understanding of their own learning processes. Students often indicated that they "never thought about" their own learning and they just "took for granted that reading and studying" would foster an understanding of course material. Understanding their learning was often exciting and energizing as students felt they had mastered a skill they could continue to use in multiple settings. Second, it was evident, however, that some students were resistant to changing their learning processes, even when they were unsure of the nature of those processes. It took a great deal of work for many students who participated in this study to find the willingness to try this learning strategy and to learn how to use concept maps. This again points out the depth to which learning strategies are engrained. Finally, it was interesting to note that once study participants did understand their own learning, they continued to move forward in developing their thinking abilities even if they did not use the concept map explicitly. Again, this finding is encouraging, as it demonstrates the long-term impact that mapping may have with HRD students.

On the other hand, students did identify time as the major barrier to creating concept maps. Creating concept maps fosters a higher level of understanding of course material - but it takes more time. For HRD students' time is a carefully managed resource. One way to overcome the lack of time is to encourage students to use technology to create their concept maps. The technology streamlines the logistics of creating the maps and thus, can decrease the time required and maintain the gains in learning and thinking abilities.

Implications for Graduate Education in HRD

This study has implications for graduate education in HRD. As Watkins (2000) indicates, "the aims of HRD are to bring about learning and change in an organizational context" (p. 54). It is this researcher's belief that for HRD graduate students to develop into HRD professionals who foster learning and change, the first step is for HRD graduate students to understand their own learning processes. Once students in this study were able to learn in this fashion and explain their own learning, they were much better prepared to function as HRD professionals promoting learning and change. A number of students shared examples and cases where they used mapping in their organizations to analyze performance projects, develop strategic plans, teach leadership, support decision-making and brainstorm new ideas. This use of concept mapping in the workplace seems to indicate the wider application and implications that this learning strategy has for HRD. The major implication here, for faculty in HRD programs, is that students often do not understand their own learning processes and need practice with learning strategies that will help them develop their learning and thinking abilities. Once students develop more complex learning strategies, they are then better prepared to think critically and analytically about specific content they are learning.

The biggest challenge for faculty in HRD programs is changing teaching approaches to incorporate research on student learning. Using concept maps necessitates that faculty have a good understanding of constructivist learning and the ways in which maps represent students' thinking. To use mapping, faculty need to be willing to foster an approach to learning as meaning construction. This means that the focus of courses shifts from teaching and presenting information to learning and creating meaning. The role of the faculty member shifts from content expert to facilitator of learning. Often this is a demanding change that requires a new way of thinking about teaching and learning.

This study indicates that concept maps can effectively promote learning of HRD graduate students and thus, can be added to the teaching strategies of faculty in HRD. The maps support both constructivist teaching and learning approaches and seem to have wider applicability to the work world as well.

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